

On some New Species of *Cheliferidæ*, Hans., and *Garypidæ*, Hans., in the British Museum. By C. J. WITH, Copenhagen. (Communicated by the Rev. T. R. R. STEBBING, F.R.S., F.L.S.)

[Read 2nd May, 1907.]

(PLATES 8-10.)

ALL the species described in this paper belong to the British Museum, and have been worked out at the request of the authorities of that institution. The treatise is subdivided into two parts and a supplement. In the first part eight, mostly new, species of *Chelifer*, Geoffroy, are described or mentioned; in the second part descriptions are given of several new and old species of the *Garypidæ*, Hansen (*cf.* below). The supplement deals with the remarkable forms of galea found in *Chiridium ferum*, Simon, and *Ideoronecus* ("Roncus") *Cambridgei*, L. Koch. In the following pages I often refer to other papers, previously published, dealing with the Chelonethi, as well as one ("An Account of the South-American *Cheliferineæ*, Simon") which I hope will be published in the 'Transactions' of the Zoological Society.

#### Part I.—SPECIES OF *CHELIFER*.

##### A. *Species from Australasia.*

The Australian fauna of Chelonethi is, to judge from the number of species which have as yet been recorded, only poor, but I think that the number of species will be, at least, doubled when these vast regions have been properly explored. Of the described fourteen species of *Cheliferidæ*, Hansen, only two are recorded from other regions; but these statements are very doubtful (*cf.* 14. p. 98); in this paper I am able to add four new species. Of these eighteen species, eleven at least have accessory teeth on fingers of palps like the *Ch. cimicoides*, F., group; about five belong to the *Ch. birmanicus*; Thorell, and at least one (two?) may be referred to the *Ch. caneroides*, L., group.

The following synoptic key of the four herein described species must be used in connection with that given in my earlier paper (14. pp. 95-97 and 15. p. 328):—

- a.* Hairs distinctly clavate. Femur 3 times as long as wide, concave anteriorly. Chela 4·3 as long as wide . . . . . 1. *Ch. vigil*, sp. n.
- b.* Hairs not distinctly clavate. Femur not more than 2·3 as long as wide, not concave anteriorly. Chela less than 3·4 as long as wide.
- a'.* Hairs short and obtuse. Hand at least 1·2 as long as tibia and 1·6 as long as movable finger, which is much longer than the immovable one . . . . . 2. *Ch. Keyserlingi*, sp. n.

- b'*. Hairs fairly long and pointed. Hand less than 1.1 as long as tibia and less than 1.4 as long as fingers, which are of about equal length.
- a*<sup>2</sup>. Abdomen distinctly granular laterally. Femur 2.1 and chela 3.3 as long as wide; tibia slightly convex and hand almost straight anteriorly . . . . . 3. *Ch. taierensis*, sp. n.
- b*<sup>2</sup>. Abdomen not granular laterally. Femur 2.3 and chela 3.1 as long as wide; tibia as well as hand distinctly convex anteriorly . . . . . 4. *Ch. funafutensis*, sp. n.

1. CHELIFER VIGIL, sp. n. (Plate 8. figs. 1 & 2; text-fig., p. 51.)

♂. Ocular spots wanting. Cephalothorax somewhat wider than long, with two rather indistinct transverse grooves and distinctly granular. The short, somewhat flattened abdomen with distinctly granular sclerites and with from fourteen to eighteen rather short and distinctly clavate hairs along the hindmost row of each tergite in addition to four in front of the row. Palps more or less distinctly granular, with short, slightly clavate hairs on the anterior surface of the femur. The trochanter has anterior outline distinctly convex and is posteriorly slightly but dorsally distinctly produced; femur, which is about 3 times as long as wide, is widened out towards the extremity, anteriorly slightly concave and posteriorly almost straight; tibia 2.8 as long as wide, anteriorly moderately convex and posteriorly slightly so. Chela, which is 4.3 as long as wide, is 1.3 narrower than the trochanter is long; hand, which is about as long as and 1.2 wider than the tibia, is a little wider than deep and 1.3 as long as finger. Tibia of the first pair of legs 1.2 as long as the tarsus, which is 3.3 as long as deep; femur IV. 2.7 as long as deep and 1.4 lower than the tarsus is long.

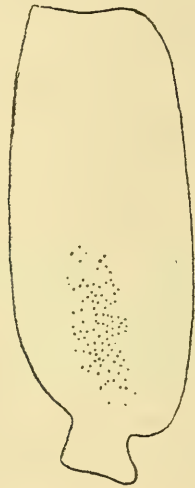
*Cephalothorax*.—No trace of eyes or *ocular spots* was observed. The cephalothorax, which is somewhat broader behind than it is long, has an anterior, fairly prominent transverse groove, which is slightly curved backwards in the middle, and a posterior very indistinct one. The integument is everywhere strongly granular, with short clavate hairs.

*Abdomen*.—The abdomen, which is only a little longer than wide and somewhat flattened, seems to have all the tergites with the exception of the eleventh longitudinally divided. The sclerites are distinctly granular and the tergites bear along their hindmost margin from fourteen to eighteen short and distinctly clavate hairs in addition to four in front of the row.

*Antennæ*.—The terminal hair extends in a slight degree beyond the rather short and clumsy *galea*, which in its distal half bears at least six short teeth. The *flagellum* consists of three hairs.

*Palps* (Pl. 8. figs. 1 & 2).—The maxillæ are almost smooth in the middle but laterally slightly granular. The three proximal joints of the palps are

more or less distinctly granular except beneath, most distinctly the dorsal protuberance of the trochanter, where the granules are pointed; the hand is fairly distinctly granular anteriorly, elsewhere more or less smooth. The short hairs are proximally slightly clavate and curved, distally obtuse and dentated. The *trochanter*, which is 1·5 as long as wide, has the anterior outline distinctly convex beyond the stalk and then terminally a trifle concave; posteriorly it is only slightly produced, but dorsally it is prolonged into a high, almost semi-circular protuberance. The *femur*, which has a fairly long and well-defined stalk (beyond which it is widened out somewhat towards the end and then slightly narrower), is about 3·1 as long as wide; the anterior outline is beyond a short and only slightly marked elevation slightly concave, most distinctly beyond the middle, while the posterior is rather abruptly convex basally, then straight in the middle, and terminally a little convex. The *tibia*, which has a fairly long but not very well-defined stalk, is distinctly shorter and a little wider than the femur, and is 2·8 as long as wide; the anterior outline is first moderately convex and then a little concave, while the posterior is beyond the



*Chelifer vigil*, n. sp., ♂. Chela of left palp, in ventral view.  $\times 77$ .

small condylus and almost obsolete basal elevation straight and then distally a little convex. The *chela*, which is 4·3 as long as wide, is 1·3 narrower than the trochanter is long; the *hand*, which is about as long as and 1·2 as wide as the tibia, is 2·4 as long as wide, a trifle wider than deep, and 1·3 as long as the fingers, which are almost twice as long as the hand is deep, and which gape considerably when closed; the lateral outlines of the hand as well as the dorsal and ventral ones are very slightly convex or even straight. The immovable finger has anteriorly five *accessory* teeth and posteriorly eight in the

middle and beyond, while the movable finger has eight and nine. Anteriorly the immovable finger bears two *spots* behind the two basal tactile hairs and five in an irregular longitudinal row from the basal tactile hairs to somewhat behind the fourth hair, which is placed in the terminal third, while the movable has two just beyond the base. Posteriorly the immovable finger bears five "spots," and the movable four, arranged as shown in Pl. 8. fig. 2. At the base of the hand ventrally, occupying an area as broad as one-third of the hand and as long as one-fourth of its length, a large number (about 100) of the usual "spots" standing near to each other are observed (text-fig., p. 51).

*Coxæ*.—The second and the third pair are elongated and fairly distinctly widened out towards the extremity; the fourth pair are very elongated as well as of a somewhat trapezoidal shape, being scarcely enlarged towards the end, and have the hinder margin fairly well separated from the inner, which is scarcely half its length.

*Legs*.—The proximal joints are distinctly granular. The short hairs are dorsally curved and slightly clavate, while those of the ventral side are obtuse and dentated, only a few being simple. The tarsal *tactile* hairs as well as the long and slender ones of the trochanters and trochantins are wanting. The legs are short and clumsy, with the trochantin of the first pair of legs much deeper than the femur proper, while the tibia is 1·2 as long as the *tarsus*, which is 3·3 as long as deep; the *femur* of the fourth pair of legs is almost 2·7 as long as deep, 1·3 as long as the tibia, and 1·4 lower than the tarsus is long.

*Colour*.—The palps yellowish brown, while the cephalothorax and the abdomen are darker brown in this very contracted specimen.

*Measurements*.—Cephalothorax 0·920 (0·966); abdomen 1·380 (1·265) mm.

Palps: trochanter 0·460 (0·310); femur 0·897 (0·285); tibia 0·805 (0·290); hand 0·828 (0·345), depth 0·322; finger 0·647 mm.

Leg I.: femur 0·494 (0·190), trochantin 0·091 (0·198); tibia 0·350 (0·114); tarsus 0·281 (0·084) mm.

Leg IV.: femur 0·646 (0·243); tibia 0·494 (0·129); tarsus 0·350 (0·095) mm.

*Variation*.—Besides the described male I have examined a very poorly-preserved specimen, probably a female, which differed in the following structures, namely, the much more slender palps, with femur 3·5 as long as wide, &c. The most important difference, which is certainly one of sexual value, is that the area adorned with "spots" at the base of the hand is wanting; number of "spots" of the fingers, which only gape a little when closed, is, anteriorly, in the immovable finger very similar to that of the male, but the movable has five in a longitudinal row.

*Material*.—Of this species I have examined the two above-mentioned specimens as well as three pale very small ones, collected in Taieri, New Zealand.

*Remarks.*—This species may easily be distinguished from all other Australian forms by its exceedingly long and slender chelæ, which ventrally are adorned with a number of “spots” in the male.

2. CHELIFER KEYSERLINGI, sp. n. (Plate 8. figs. 3–5.)

♀. Ocular spots obsolete. Cephalothorax somewhat wider than long, without transverse grooves and distinctly granular. The depressed, not very slender abdomen has almost smooth sclerites and has sixteen short slightly clavate hairs along hindmost margin of the tergites in addition to four (?) in front. The palps more or less distinctly granular, with rather short, slightly clavate hairs on the anterior surface of femur. The trochanter has anterior outline strongly convex and is posteriorly somewhat bigibbose; femur, which is 2·2 as long as wide, is distinctly attenuated and posteriorly rather abruptly convex; the tibia, which is 2·1 as long as wide, is anteriorly moderately convex, and posteriorly beyond the deep basal incision at first almost straight and then slightly convex. Chela, which is 3·4 as long as wide, is 1·2 narrower than trochanter is long; hand, which is 1·2 as long as and 1·2 wider than tibia, is 1·2 wider than deep and 1·6 as long as the fingers, of which the movable is distinctly the longer. Tibia of the first pair of legs 1·2 as long as the tarsus, which is 3·4 as long as deep; femur IV. is 2·4 as long as deep and a trifle lower than the tarsus is long.

*Cephalothorax.*—Ocular spots obsolete or even wanting. The cephalothorax, which is somewhat wider behind than it is long and distinctly narrowing towards the front, shows no trace of transverse stripes. The integument is distinctly granular all over and has short, slightly clavate hairs.

*Abdomen.*—The depressed, not very slender abdomen has all the tergites except the last one indistinctly divided and almost smooth sclerites, but is laterally striated and even indistinctly granular; along hindmost margin of the tergites at least sixteen rather short and slightly clavate hairs are found, in addition to four (?) in front.

*Antennæ.*—The rather short slender *galea*, which extends a trifle beyond the terminal hair, has about six short terminal teeth. The *flagellum* consists of three hairs, of which the anterior is marginally serrated.

*Palps* (Pl. 8. figs. 3–5).—The *maxillæ* are smooth in the middle but granular laterally. The palps are distinctly granular in front, less distinctly so behind, and dorsally, but especially ventrally, indistinctly granular or almost smooth. The short hairs are slightly clavate or obtuse. The *trochanter*, which is 1·5 as long as wide, is anteriorly strongly convex and posteriorly produced into a low rounded protuberance; the dorsal protuberance is deep and rounded, almost semicircular, when seen from in front; the whole posterior surface of the femur appears somewhat bigibbose. The *femur*,

which has a short well-defined stalk (beyond which it is distinctly attenuated towards the end), is 2·2 as long as wide ; the anterior outline is slightly convex proximally and terminally a trifle concave, while the posterior is rather abruptly convex beyond the stalk and then almost straight. The *tibia*, which has a short and very well-defined stalk, is shorter but somewhat wider than the femur, and is 2·1 as long as wide ; anteriorly it is moderately convex proximally and a trifle concave terminally, while the posterior outline is, beyond the large and prominent condylus and rather insignificant basal elevation (separated from each other by a deep incision), almost straight and then slightly convex. The *chela*, which is 3·4 as long as wide, is almost 1·2 narrower than the trochanter is long. The *hand*, which is 1·2 as long as well as wide as the tibia, is almost 2·2 as long as wide, distinctly 1·2 wider than deep and 1·6 as long as the movable finger, which is distinctly longer than the immovable and 1·3 as long as hand is wide, but 1·6 as long as hand is deep ; the hand is very suddenly enlarged beyond the stalk, as the outlines, especially the posterior, are almost perpendicular upon it, and then almost straight. The margins of the fingers are peculiarly shaped ; the immovable finger has the ventral margin concave basally, convex in the middle, and then a little concave again (*cf.* figs. 4 & 5), while the movable is convex basally and then concave towards the terminal fourth, where the fingers touch each other when closed ; as the convexities and the concavities of the two fingers are not equally well marked and do not fit completely into each other, the fingers gape slightly in basal third and fairly distinctly beyond the middle, as seen in the figures ; besides which the movable finger, just where the margin is convex posteriorly, has a swelling, corresponding to an anterior bend, while the immovable has a swelling anteriorly and a bend posteriorly, where the margin is convex but less marked. The fingers cross each other in a slight degree, so that the margin of the immovable finger is terminally covered by the movable, when seen from behind. The fingers bear anteriorly towards the end about three *accessory* teeth, while the immovable finger has posteriorly twelve and the movable eight. The number of *spots* is anteriorly five and three on the immovable and movable fingers respectively, while both fingers bear three posteriorly, arranged as shown in figs. 4 & 5.

*Coxæ*.—The second and third pairs are very elongated and distinctly widened out towards the extremity, especially the former, which rather suddenly narrows towards the base and has inner margin much shorter than that of the third pair. The fourth pair are almost trapezoidal, not at all widened out towards the end, and have the inner and hinder margins, of which the former is somewhat longer, gradually merging into each other.

*Legs*.—The proximal joints are slightly granular. The hairs are dorsally short and slightly clavate, and ventrally longer and more simple ; a tarsal “*tactile*” hair seems to be present about in the middle. The legs are rather

short and clumsy; the trochantin of the first pair is distinctly deeper than the femur proper, and the tibia is 1·2 as long as the *tarsus*, which is 3·4 as long as deep; the *femur* of the fourth pair is 2·4 as long as deep, 1·3 as long as the tibia, and only a trifle lower than the *tarsus* is long.

*Colour*.—The palps are light reddish brown; the cephalothorax and tergal sclerites are pale brown.

*Measurements*.—Cephalothorax 1·380 (1·495); abdomen 3·8 (2·3) mm.

Palps: trochanter 0·736 (0·506); femur 1·196 (0·535); tibia 1·150 (0·552); hand 1·380 (0·647), depth 0·529; finger 0·828 mm.

Leg I.: femur 0·768 (0·243), trochantin 0·106 (0·258); tibia 0·475 (0·160); tarsus 0·384 (0·144) mm.

Leg IV.: femur 1·064 (0·456); tibia 0·836 (0·236); tarsus 0·479 (0·152) mm.

*Material*.—A single specimen (♀) from Rockhampton examined.

*Remarks*.—This species is nearly related to *Ch. brevispinosus*, Keyserling (*cf.* 4, pp. 46–47, & 14, p. 110), but seems to differ by the long and slender chela, which is much wider than deep, and with the hand very much longer than the finger. This species is best characterized by the peculiar structure of the fingers.

### 3. CHELIFER TAIERENSIS, sp. n. (Plate 8, figs. 6–8.)

♀. Ocular spots indistinct. Cephalothorax wider than long, with two rather indistinct transverse stripes and fairly distinctly granular. The fairly long and slender abdomen with sclerites indistinctly shagreened but with the sides distinctly granular, and with twelve rather short slightly clavate hairs along the hindmost margin of the tergite in addition to four in front of the row. The palps partly granular anteriorly and with very long, pointed hairs on the anterior surface of the femur. The trochanter has anterior outline moderately convex and is posteriorly slightly bigibbose; femur, which is 2·1 as long as wide, is only slightly widened out towards the extremity, and posteriorly beyond the stalk abruptly convex and then almost straight; tibia, which is 2·2 as long as wide, is anteriorly as well as posteriorly towards the end somewhat convex. Chela, which is 3·3 as long as wide, is scarcely as broad as the trochanter is long; hand, which is almost as long as but 1·2 wider than tibia, is a little wider than deep and 1·3 as long as fingers. Tibia of the first pair of legs 1·2 as long as the tarsus, which is 4·4 as long as deep; femur IV. 2·2 as long as deep and 1·4 lower than the tarsus is long.

*Cephalothorax*.—*Ocular* spots almost obsolete. The cephalothorax, which is somewhat longer than wide, has two broad, not very prominent, transverse stripes. The integument is fairly distinctly granular, with short slightly clavate hairs.

*Abdomen.*—The fairly long and slender abdomen, which has all the tergites with the exception of the eleventh longitudinally divided, has its sclerites indistinctly shagreened, but the interstitial membranes, but especially the sides of the abdomen, distinctly *granular* with pointed granules; the tergites have about twelve slightly clavate hairs along the hindmost margin in addition to four in front of the row. On the last segments no “tactile” hairs observed in not well-preserved specimen.

*Antennae.*—The slender *galea*, which possesses about five terminal teeth, extends distinctly beyond the terminal hair. The *flagellum* consists of three hairs, of which the anterior is marginally serrated.

*Palps* (Pl. 8. figs. 6–8).—The *maxille* are smooth in the middle at least, while the palps are granular on the trochanter posteriorly, and less distinctly on anterior surfaces of the three following joints. The long or very long hairs are pointed, broken or straight, with a single or a few teeth. The *trochanter*, which is 1·6 as long as wide, is anteriorly moderately convex, and posteriorly fairly distinctly produced; dorsally it is prolonged into a rather deep, somewhat conical protuberance, so that the whole joint appears slightly bigibbose. The *femur*, which has a short well-defined stalk (beyond which the joint is only in a slight degree attenuated), is 2·1 as long as wide; the anterior outline is moderately convex and then concave, while the posterior is beyond the stalk abruptly convex, then in the middle straight and towards the end slightly convex. The *tibia*, which has a fairly long and well-defined stalk, is somewhat longer and wider than the femur, and 2·2 as long as wide; anteriorly it is first slightly convex and then terminally a little concave, while the posterior outline is almost straight beyond the condylus and fairly well-marked basal elevation and then terminally moderately convex. The *chela*, which is 3·3 as long as wide, is scarcely as broad as the trochanter is long; the *hand*, which is about as long as the tibia and 1·2 as wide, is 1·9 as long as wide, a little wider than deep, and 1·3 as long as the fingers, which are much longer than the hand is deep, and scarcely gape when closed; the posterior and the dorsal margins of the hand are slightly convex, and the anterior and ventral areas are almost straight. Anteriorly no *accessory* teeth were observed, but posteriorly the immovable has four and the movable six. The number of “spots” is very insignificant, viz. four anteriorly as well as posteriorly on the immovable finger, and none on the movable (figs. 7 & 8).

*Coxæ.*—The second and the third pair are somewhat triangularly formed, as the interior margin is only short; the fourth pair are somewhat widened out towards the extremity, distinctly longer than wide, with inner margin much shorter than hinder and fairly well distinguished from it.

*Legs.*—The proximal joints are almost smooth. The hairs are dorsally fairly long and pointed, with a single or a few teeth, but ventrally more or less simple. The tarsal “tactile” hair is two-fifths removed from the base.



The fairly long and slender legs have the trochantin of the first pair much deeper than the femur proper, while the tibia is 1·2 as long as the *tarsus*, which is 4·4 as long as deep; the *femur* of the fourth pair of legs is 2·2 as long as deep, 1·1 as long as the tibia, and 1·4 lower than the tarsus is deep.

*Colour*.—The palps are reddish brown, while the cephalothorax and abdominal sclerites are pale brown.

*Measurements*.—Cephalothorax 0·920 (0·805); abdomen 2·530 (1·219) mm.

Palps: trochanter 0·506 (0·310); femur 0·805 (0·375); tibia 0·897 (0·405); hand 0·874 (0·475), depth 0·437; finger 0·667 mm.

Leg I.: femur 0·578 (0·190), trochantin 0·152 (0·215); tibia 0·441 (0·114); tarsus 0·365 (0·084) mm.

Leg IV.: femur 0·699 (0·319); tibia 0·646 (0·182); tarsus 0·441 (0·114) mm.

*Material*.—Of this species I have examined a single not well-preserved female from Taieri (New Zealand).

*Remarks*.—This species is easily distinguished from all other Australasian species by the prominent granulation of the sides of the abdomen, by the clumsy femur and slender chela of the palps, and by their long almost simple hairs.

#### 4. CHELIFER FUNAFUTENSIS, sp. n. (Plate 8, figs. 9–12.)

Ocular spots indistinct. Cephalothorax distinctly longer than wide, with anterior stripe fairly indistinct and granular. The fairly long and slender abdomen with small sclerites, and with from 12–14 fairly long and pointed hairs along the hindmost margin of each tergite in addition to four in front of row. Palps almost smooth, with fairly long pointed hairs on the anterior surface of the femur. Trochanter has anterior outline slightly convex and is posteriorly slightly, but dorsally fairly distinctly produced; femur, which is 2·3 as long as broad, is somewhat attenuated, and posteriorly beyond the stalk not very abruptly convex; tibia, which is 2·2 as long as wide, is anteriorly moderately convex, and posteriorly first a trifle concave and then slightly convex. Chela, which is 3·1 as long as wide, is 1·1 as broad as the trochanter is long; the hand, which is about 1·1 as long as but 1·3 wider than the tibia, is almost 1·1 as wide as deep and 1·2 as long as fingers. Tibia of the first pair of legs 1·2 as long as the tarsus, which is 3·6 as long as deep; femur IV. 2·3 as long as deep and 1·3 lower than tarsus is long.

*Cephalothorax*.—*Ocular spots* are very indistinct. The cephalothorax, which is distinctly longer than wide, has two transverse *stripes*, of which the posterior is almost obsolete, while the anterior is broad, fairly prominent, and slightly curved forwards in the middle. The integument appears smooth in the middle but has laterally minute granules; the hairs are moderately long, slightly obtuse, and with a few terminal teeth.

*Abdomen*.—The fairly long and slender abdomen, which has probably all the tergites with the exception of the first and the eleventh longitudinally divided, has the sclerites of the abdomen smooth and the dorso-ventral membrane between the sternites and tergites striated longitudinally; the tergites bear along their hindmost margin from 12–14 fairly long or long, almost pointed or simple *hairs*. The eleventh tergite possesses at least a single pair of “tactile” hairs, while the corresponding sternite has two.

*Antennæ*.—The rather short and slender *galea*, which extends somewhat beyond the terminal hair, has in distal third about six rather short branches, decreasing in length towards the tip. The *flagellum* consists of three hairs, of which the anterior has a few marginal branches.

*Palps* (Pl. 8, figs. 9–12).—The *maxillæ* are completely smooth and so are the palps, with the exception of the minutely and indistinctly granular anterior surfaces of the femur and tibia. The fairly long hairs are stiff, pointed, and almost simple (a few may be obtuse). The *trochanter*, which is about 1.5 as long as wide, is anteriorly slightly convex and posteriorly a trifle produced; dorsally it is prolonged into a rounded, somewhat conical, not very deep protuberance. The *femur*, which has a rather short and fairly well-defined stalk (beyond which it is somewhat attenuated towards the end), is about 2.3 as long as wide; the anterior outline is slightly convex and then a trifle concave, while the posterior is beyond the stalk not very abruptly convex and then very slightly so. The *tibia*, which has a fairly long and not very well-defined stalk, is longer and wider than the femur, and is about 2.2 as long as wide; anteriorly it is beyond the stalk moderately convex and then terminally slightly concave, while posteriorly it is beyond the rather low condylus and elongated not very well-marked basal elevation first a trifle concave and then slightly convex. The *chela*, which is about 3.1 as long as wide, is 1.1 as broad as the trochanter is long; the *hand*, which is somewhat longer than the tibia and distinctly 1.3 wider, is 1.7 as long as the fingers, which are 1.4 as long as the hand is wide, and which gape a trifle when closed; the lateral as well as the dorsal outlines of the hand are slightly convex, while the ventral is almost straight. The fingers bear apparently no *accessory* teeth anteriorly, but posteriorly about five each distally; anteriorly nine and three (rather large) “spots” are observed on the immovable and movable finger respectively, and posteriorly only two basal ones on the immovable finger (*cf.* figs. 11 & 12).

*Coxæ*.—The second and third pairs are enlarged towards the extremity, most distinctly the latter, while the fourth pair are trapezoidal with the inner margin about as long as the hinder.

*Legs*.—The proximal joints are smooth. The fairly long or long hairs are dorsally pointed and stiff, with a few terminal teeth, those of the ventral side are more slender and almost or completely simple; dorsally, in the middle

of the tibia of the fourth pair, a distinctly longer, but not simple, hair is found; the tarsal "tactile" hair is distinctly one-third removed from the base and about as long as the tarsus. The legs are rather short and clumsy; the femur of the first pair of legs is scarcely deeper than the trochantin, and the tibia is almost 1.2 as long as the *tarsus*, which is 3.6 as long as deep; the *femur* of the fourth pair of legs is 2.3 as long as deep, 1.3 as long as the tibia, and 1.3 lower than the tarsus is long.

*Colour*.—The palps and the cephalothorax are yellowish brown.

*Measurements*.—Cephalothorax 0.782 (0.621); abdomen 2.185 (1.035) mm.

Palps: trochanter 0.386 (0.235); femur 0.621 (0.265); tibia 0.647 (0.299); hand 0.690 (0.400), depth 0.368; finger 0.575 mm.

Leg I.: femur 0.426 (0.160), trochantin 0.076 (0.160); tibia 0.327 (0.114); tarsus 0.274 (0.076) mm.

Leg IV.: femur 0.555 (0.247); tibia 0.433 (0.140); tarsus 0.327 (0.091) mm.

*Material*.—A single mutilated female was obtained by Professor W. J. Sollas in Funafuti, and originally mounted with *Garypinus oceanicus*, sp. n.

*Remarks*.—This species seems to be nearly related to *Ch. pygmaeus*, Keys., but differs by larger size, by the chela, which is as long as the two preceding joints together, not 1.4 shorter, by the shorter fingers (*cf.* Keyserling, 4. pp. 49–50), and by the tibia of the first pair of legs, which is distinctly longer than the tarsus (*cf.* With, 14. p. 110). From *Ch. taierensis*, sp. n., it differs distinctly by smaller size, by the dorso-ventral membranes of the abdomen, which is not distinctly granular, and by the different shape of the palps, *e. g.* more convex inner outline of tibia.

#### B. *Species from Asia.*

So far as the *Cheliferidæ*, Hansen, are concerned I refer to my paper on Indian Chelonethi (18): in the following pages three species, included in the collections of the British Museum, will be mentioned or described; they belong to the *Ch. birmanicus*, Thorell, group.

#### 5. CHELIFER JAVANUS, Thorell. (Plate 8, figs. 13 & 14.)

1883. Thorell, (3) pp. 37–40, tav. 5. figs. 20–22.

1906. With, (18) pp. 184–185.

Indistinct ocular spots. Cephalothorax smooth, without transverse stripes.

The moderately long and slender abdomen with six fairly long pointed hairs in front of row. The palps distinctly granular anteriorly, with fairly long pointed hairs. Trochanter scarcely bigibbose in female, slightly so in male; femur, which is 2.2 as long as wide, is somewhat attenuated and posteriorly beyond stalk rather abruptly convex; tibia, which has a rather short and well-marked stalk, and is about twice as

long as wide, is anteriorly moderately convex and posteriorly beyond low but well-marked basal elevation is first almost straight and then convex. Chela 2·7 (♀) or 2·6 (♂) as long as wide; hand, which is 1·4 (♀) or 1·2 (♂) as wide as tibia, is about 1·1 deeper than wide, and 1·4 (♀) or 1·3 (♂) as long as finger, which is about 1·1 longer than hand is deep. Tibia of the first pair of legs 1·1 as long as the tarsus, which is 4·8 (♀) or 4·4 (♂) as long as deep; femur IV. 2·7 (♀) or 2·4 (♂) as long as deep, and about 1·6 lower than the tarsus is long.

♀.

*Cephalothorax*.—*Ocular* spots very indistinct. Cephalothorax, which is somewhat longer than broad behind, has no transverse *stripes*, is smooth and provided with moderately long, almost simple hairs.

*Abdomen*.—The fairly long and slender abdomen has the tegites, with the exception of the first three and the last one, more or less indistinctly divided longitudinally. The sclerites are smooth, and the median tegites bear along their hindmost margin from 10–12, stiff, pointed, and almost simple fairly long hairs in addition to generally six longer hairs in front of row; the tenth tegite possesses a single “tactile” hair, and the eleventh two pairs; the corresponding sternites bear both two pairs of tactile hairs.

*Antennae*.—The fairly long and slender *galea*, which extends distinctly beyond the terminal hair, seems to bear about six distal branches. The *flagellum* consists of four hairs, of which the anterior has only a few teeth.

*Palps* (Pl. 8, figs. 13 & 14).—The *maxillae* are smooth. The palps are anteriorly granular, most distinctly so the hand, but elsewhere are more or less smooth. The fairly long and stiff *hairs* are almost simple and pointed; at least the following long, slender, and completely simple hairs are found:—on the femur a single posteriorly in the middle and two terminal, on the tibia one above and one below the basal elevation, and on the hand basally a dorsal, a ventral, and a posterior one, as well as a ventral one beyond the middle. The *trochanter*, which is about 1·5 as long as wide, is anteriorly very slightly convex, and posteriorly produced into a rounded low process; dorsally it is produced into a similar low process, but cannot, in a proper sense, be designated bigibbose. The *femur*, which has a short and well-defined stalk (beyond which it is somewhat attenuated towards the end), is about 2·2 as long as wide; the anterior outline is slightly convex and then concave, while the posterior is just beyond the stalk rather abruptly convex and then almost straight. The *tibia*, which has a moderately long and well-defined stalk, is somewhat longer and wider than the femur and is 2·1 as long as wide; anteriorly it is moderately convex and then concave, and posteriorly beyond the not very prominent condylus and low, but well-marked basal elevation, first almost straight and then moderately convex. The *chela*, which is about 2·7 as long as wide, is

almost 1·2 as broad as the trochanter is long; the *hand*, which is somewhat longer than, but 1·4 as broad as, the *tibia*, is 1·6 as long as wide, but 1·5 as long as deep, almost 1·1 deeper than wide, and 1·4 as long as the *finger*, which is scarcely 1·1 as long as the *hand* is deep; the outlines of the *hand* are straight or slightly convex. Anteriorly, the immovable *finger* has about seven *spots* in a longitudinal row, three being placed behind the basal "tactile" hairs, and the movable five basally; posteriorly the immovable *finger* has two "spots" and the movable three, arranged as shown in fig. 14.

*Coxæ*.—The *coxæ* are very similar to those figured of *Ch. nidificator*, Balz. (cf. 19. fig. 36 c), the second and the third pair being short and distinctly widened out towards the end, and the fourth pair being trapezoidal and not at all widened out, with the inner margin longer than the somewhat concave hinder.

*Legs*.—Pointed, stiff, moderately long, and not completely simple hairs present, in addition to a long completely simple hair, placed dorsally at the tip of femur IV.; tarsal "tactile" hair basal and much shorter than the tarsus. The legs are moderately long and slender; the articulate cavity of the trochantin of the first pair of legs is very wide; the *tibia* of the first pair of legs is 1·1 as long as the *tarsus*, which is 4·8 as long as deep. The *femur* of the fourth pair of legs is 2·7 as long as deep, 1·1 as long as the *tibia*, and 1·7 lower than *tarsus* is long.

*Colour*.—The palps are reddish brown with the *hand* darkest. The cephalothorax and tergal sclerites pale brown.

*Measurements*.—Cephalothorax 0·920 (0·851); abdomen 4·0 (1·6) mm.

Palps: trochanter 0·483 (0·310); femur 0·828 (0·375); *tibia* 0·865 (0·414); *hand* 0·897 (0·565), depth 0·610; *finger* 0·647 mm.

Leg I.: femur 0·608 (0·190), trochantin 0·137 (0·213); *tibia* 0·486 (0·140); tarsus 0·441 (0·091) mm.

Leg IV.: femur 0·798 (0·296); *tibia* 0·684 (0·185); tarsus 0·494 (0·114) mm.

♂.

*Antennæ*.—The terminal hair extends distinctly beyond the *galea*, which has three almost obsolete distal teeth.

*Palps*.—The granulation is much better marked than in the female, being very distinctly marked anteriorly, less distinctly posteriorly, and very slightly dorsally. The *trochanter* appears slightly bigibbose, as the dorsal protuberance is deeper and somewhat conical. The *tibia* is scarcely twice as long as wide, and its posterior outline is beyond the basal elevation first a trifle concave and then distinctly convex, the convexity being much better marked than the anterior one, as well the corresponding one in the female. The *chela* is 2·6 as long as wide; the *hand*, which is scarcely as long as the *tibia* and 1·2 as wide, is only 1·5 longer than wide, 1·4 longer than deep, and 1·3 as long as the *finger*. The immovable *finger* has anteriorly about five "spots," less

regularly placed, and posteriorly four, while those of the movable fingers are scarcely different.

*Coxæ*.—The fourth pair are of a somewhat triangular appearance, as they are somewhat widened out, and as the inner and hinder margins merge gradually into each other, the prominent obtuse angle of the female being scarcely marked.

*Legs*.—The *tarsus* of the first pair of legs is only 4·4 as long as deep; the *femur* of the fourth pair of legs 2·4 as long as deep, scarcely 1·1 as long as tibia, and 1·6 lower than *tarsus* is long.

*Colour*.—The colour is somewhat darker and the chela is sometimes metallic.

*Measurements*.—Cephalothorax 0·874 (0·782); abdomen 3·0 (1·1) mm.

Palps: trochanter 0·460 (0·299); femur 0·805 (0·368); tibia 0·865 (0·437); hand 0·828 (0·540), depth 0·575; finger 0·621 mm.

Leg I.: femur 0·578 (0·182), trochantin 0·137 (0·213); tibia 0·464 (0·144); tarsus 0·410 (0·093) mm.

Leg IV.: femur 0·737 (0·307); tibia 0·684 (0·182); tarsus 0·486 (0·110) mm.

*Material*.—Of this species I have examined 13 females and 13 males, of which one showed abnormal segmentation (*cf.* With, 14. p. 137, pl. viii. fig. 1 *a*), collected in Tharrawaddi, Burma, by Mr. Oates, and mounted with 18 females of *Ch. plebejus*, With (*cf.* 18. p. 187). It has previously been recorded from Java (*cf.* 18. p. 185).

*Remarks*.—It is with hesitation I refer the described form to *Ch. javanus*, Thorell, but I do so because the differences may be explained by variation between different specimens and a few trifling mistakes in Thorell's original description; the most important differences are the palps, which are "subtilissime impresso-punctati," not distinctly granular, and the apparently long tibial stalk of *Ch. javanus*, Thorell. The females of this species are easily distinguished from those of *Ch. plebejus*, With, by the granular, more slender palps, which have the hand not distinctly wider than deep, but deeper than wide, as well as by the much longer and slenderer legs. As I have not had the opportunity of examining any male of *Ch. plebejus*, With, thoroughly, I cannot with certainty point out the differences, but they are undoubtedly very like those which distinguish the females from each other.

## 6. CHELIFER NAVIGATOR, *With*. (Plate 8. figs. 15 & 16.)

1906. With, (18) pp. 191–193, fig. 22, p. 192, pl. 4. fig. 9 *a*.

To this species I have referred a number of specimens collected by Mr. Oates in Burma, viz., five males in Lower Pegu, and three males and a very imperfect female (?) in Tharrawaddi, in spite of the minutely but distinctly granular anterior surface of the palps. The different specimens show variations

in the depth of the trochanteral tubercles as well as in the length and slenderness of the tibial stalks, which have the basal elevation more or less pronounced (*cf.* figs. 15 & 16). To *Ch. elongatus*, Ellingsen, it shows a remarkable similarity, but as minor differences are nevertheless observed in the shape of body and palps, and as the localities are so apart, I think that the two species must be maintained (*cf.* 19).

7. CHELIFER POCOCKI, sp. n. (Plate 8. figs. 17–19.)

1900. *Chelifera javanus*, Thorell; Pocock, (12) p. 156.

♀. Indistinct ocular spots. Cephalothorax smooth, without transverse stripes. The long and slender abdomen with six fairly long and pointed hairs in front of row. The palps slightly granular anteriorly, with fairly long pointed hairs. Trochanter bigibbese, with dorsal tubercle fairly deep and somewhat conical; femur, which is 2·2 as long as wide, is attenuated towards the end and posteriorly beyond stalk abruptly convex; tibia, which has a moderately long and well-marked stalk, and is scarcely twice as long as wide, is anteriorly distinctly convex and posteriorly beyond well-marked basal elevation is first a trifle concave and then distinctly convex. Chela 2·8 as long as wide; hand, which is 1·2 as wide as the tibia, is 1·1 deeper than wide and 1·5 as long as the fingers, which are about as long as hand is deep. Tibia of the first pair of legs 1·3 as long as the tarsus, which is 4 as long as deep; femur IV. 2·3 as long as deep, and 1·3 lower than the tarsus is deep.

*Cephalothorax*.—The *ocular* spots are indistinct. The cephalothorax, which is distinctly longer than wide, shows no trace of transverse *stripes*, is smooth and provided with moderately long, almost simple hairs.

*Abdomen*.—The very long and slender abdomen, which has the fourth to the tenth tergites longitudinally divided and trace of division in the first three, has smooth tergal sclerites. The tergites have from 10–14 fairly long and pointed hairs along the hindmost margin, in addition to six in front in the median segments; the “tactile” hairs were missing in the specimen examined.

*Antennæ*.—The *galea* is broken, but extends distinctly beyond the terminal hair. The *flagellum* consists of four hairs, of which the anterior has long marginal teeth.

*Palps* (Pl. 8. figs. 17–19).—The *maxillæ* are smooth. The palps are almost smooth except anteriorly, where they are minutely granular. The fairly long and stiff hairs are pointed and almost simple; the number and arrangement of the long, slender, and completely simple hairs are probably as in *Ch. javanus*, Thorell (*cf.* p. 60). The *trochanter*, which is about 1·5 as long as wide, is only slightly convex anteriorly, but posteriorly produced into a rounded, rather short protuberance; dorsally it is prolonged into a fairly

deep, somewhat conical and rounded tubercle, so that the posterior surface becomes fairly distinctly bigibbose; the trochanter is somewhat deeper than wide, but not so deep as the femur. The *femur*, which has a short, fairly well-defined stalk (beyond which it is distinctly attenuated), is 2·2 as long as wide; the anterior outline is slightly convex and then concave, while the posterior is abruptly convex and then straight. The *tibia*, which has a moderately long and well-marked stalk, is somewhat longer but distinctly wider than the femur and is scarcely twice as long as broad; anteriorly it is distinctly convex and posteriorly beyond well-marked basal elevation is first a trifle concave and then distinctly convex. The *chela*, which is almost 2·8 as long as wide, is about 1·1 as broad as the trochanter is long; the *hand*, which is somewhat longer and 1·2 as wide as the tibia, is 1·7 as long as wide, 1·5 as long as deep, almost 1·1 deeper than wide, and about 1·5 as long as the finger, which is about as long as hand is deep; the outlines of the hand are straight or slightly convex. Anteriorly the immovable finger has eight "spots," arranged as shown in fig. 19; posteriorly both fingers seem to bear a few spots.

*Coxae*.—The fourth pair, which have the inner margin much longer than the hinder, appear triangular, as the angle between the two margins is very obtuse.

*Legs*.—Rather short and stiff, with pointed and almost simple hairs; femur has dorsally a terminal slender, completely simple hair on the fourth pair; the dorsal "tactile" hair is about as long as the tarsus and basal. The legs are rather short and clumsy; the trochantin of the first pair has a very wide articular cavity. The tibia of the first pair is 1·3 as long as the *tarsus*, which is almost 4 as long as deep; the *femur* of the fourth pair of legs is 2·3 as long as deep, 1·2 as long as the tibia, and 1·3 lower than tarsus is long.

*Colour*.—Palps dark reddish brown, while the cephalothorax and tergal sclerites are pale brown.

*Measurements*.—Cephalothorax 0·759 (0·647); abdomen 3·11 (1·27) mm.

Palps: trochanter 0·355 (0·230); femur 0·621 (0·280); tibia 0·647 (0·335); hand 0·713 (0·414), depth 0·450; finger 0·460 mm.

Leg I.: femur 0·433 (0·155), trochantin 0·083 (0·175); tibia 0·357 (0·106); tarsus 0·274 (0·071) mm.

Leg IV.: femur 0·608 (0·270); tibia 0·509 (0·154); tarsus 0·342 (0·095) mm.

*Material*.—A single female was examined from the north coast of Christmas Island.

*Remarks*.—Pocock has identified this species with *Ch. javanus*, Thorell, but he was wrong, as the trochanter is distinctly bigibbose in *Ch. Pococki*, sp. n., but scarcely so in the other species. This species is distinguished from *Ch. navigator*, With, and *Ch. indicus*, With, to which it shows similarity by the absence of grooves on the cephalothorax and by the hand, which is 1·5 as



long as the finger ; it differs by the shorter tibial stalk and by the hand, which is almost as deep as the finger is long. From *Chelififer articulatus*, Sim., it differs by the more slender femur ; from *Ch. rotundus*, With, to which it in most respects shows very great similarity, by the less distinct granulation of the palps, by the femur (which is much more slender, being 2·2 instead of 2 as long as wide), by the tibia (which has a shorter stalk and less strongly convex outlines), as well as by a few other characters of minor value. They are perhaps male and female of the same species ; at the present, however, I prefer to found a new species.

### C. *Species from Africa.*

The *Chelififer*-fauna of Tropical Africa has until lately been very imperfectly known ; a recently published paper by Ellingsen (17) has vastly increased our knowledge by adding a number of new species to those already known, but not so many as might have been expected from the large number of specimens examined. It may nevertheless be regarded as certain that the greatest number has not yet been described. All the main groups of *Chelififer*, Geoffroy, seem to be present ; however, representatives of *Lophochernes*, Simon, are with certainty only recorded from Socotra, viz. *Ch. socotrensis*, With, and from Natal, viz. *Ch. sculpturatus*, Lew. In the British Museum collections only a single species in addition to *Ch. equester*, With, was represented, viz. *Ch. Simoni*, Balzan, about which the following remarks are offered.

#### 8. CHELIFER SIMONI, Balzan.

1891. Balzan, (6) pp. 529-531, pl. 2, figs. 20-20 a.

1906. Ellingsen, (17) pp. 254-255.

*Palps*.—The *trochanter* is scarcely produced below and posteriorly, only convex. The *hand* is as wide as deep ; the fingers gape slightly, have no *accessory* teeth, and anteriorly three basal "spots" on immovable finger, none on movable.

*Coxæ*.—The fourth pair, which are distinctly enlarged towards the end and much longer than wide, have an elongated and triangular appearance, as the short inner margin merges gradually into the about four times longer hinder.

*Legs*.—The proximal joints are granular. The rather short hairs are dorsally slightly clavate or obtuse ; tarsal "tactile" hair was missing in examined specimen. The legs are long and slender, and the trochantin of the first pair of legs has a structure similar to that of *Ch. subruber*, Simon (cf. 18. figs. 5 a-b, p. 37), and *Ch. rufus*, Balzan (cf. 19. figs. 3 d-e). The trochantin has anteriorly a small median condylus, from which the narrow articulate membrane starts, becoming broader dorsally and ventrally ; posteriorly a small condylus is placed near to the dorsal margin, and below this

the margin of the trochantin covers the base of the tibial part; the limitation between the two joints is almost perpendicular on the longitudinal axis of the femur. The tibia of the first pair is scarcely 1.1 as long as the *tarsus*, which is 5 as long as deep; the femur of the fourth pair is 2.7 as long as deep, 1.1 as long as tibia, and about half as deep as *tarsus* is long.

*Measurements*.—Leg I.: femur 0.430 (0.137), trochantin 0.114 (0.144); tibia 0.327 (0.091); *tarsus* 0.304 (0.061) mm.

Leg IV.: femur 0.540 (0.198); tibia 0.494 (0.110); *tarsus* 0.372 (0.072) mm.

*Material*.—I have examined a single female, collected by Dr. Ansorge at Huxe, Benguela.

*Remarks*.—The male of this species as well as of *Ch. angulatus*, Ellingsen, without eyes, and of *Ch. tenuimanus*, Balzan, are, according to Ellingsen, remarkable by the spinous areas found in the median sternites (*cf.* 17. p. 258). This author does not mention the even more important character found in the femur of the first pair of legs, but I nevertheless concluded that these species also in this respect are similar to *Ch. subruber*, Simon, though I had at that time not yet examined any specimen of *Ch. Simoni*, Balzan (*cf.* 18. p. 129, footnote). This species shows not only in the shape of the palps, as Mr. Ellingsen suggests, a similarity to *Ch. longichelifer*, Balzan, but also in the structure of the sternites of the male, the flagellum, which consists of four hairs, and in the articulation between the two portions of the femurs in the first pair of legs (*cf.* footnote, 18. p. 158, and 19).

#### Part II.—GARYPIDÆ, Hansen.

In the following pages unknown or imperfectly known *Garypidæ*, Hansen, forming part of the British Museum collections, are described; the descriptions are rather short, without diagnoses and without so many figures as might be desired, because I hope at an early opportunity to work out a monograph of this interesting family.

1. GARYPUS LONGIDIGITATUS, *Rainbow*. (Plate 8. fig. 20; *cf.* With, 18. fig. 3, p. 17, and tab. ii. fig. 3 a).

1897. *Chelifer longidigitatus*, *Rainbow*, (10) p. 108, pl. 2. fig. 2.

1898. *Garypus longidigitatus*, *Pocock*, (11) p. 323.

*Cephalothorax*.—Anterior pair of *eyes* slightly removed from lateral margin, but from front margin a distance about twice their diameter. *Cephalothorax*, which is much wider behind than long, is gradually attenuated towards the eyes, but suddenly narrows in front of the first pair into a long  *cucullus*, which is directed somewhat downwards and with deep median incision in front margin. The integument is granular most distinctly anteriorly, with short obtuse hairs. No trace of transverse sutures observed.

*Abdomen*.—The abdomen, which is somewhat longer than wide, shows no trace of a longitudinal line dorsally, and is distinctly granular on the transverse darker band of tergites, which possess about twenty short and pointed or obtuse hairs along the hindmost margin.

*Antennæ*.—The short *galea*, which scarcely extends beyond the terminal hair, is acute, similar to an awl. The *serrula* in one specimen as figured (18. fig. 3, p. 17) with penultimate tooth squarely truncate, in another with penultimate acute and basal two teeth more similar to those of *G. elegans*, Sim. (cf. 18. tab. ii. fig. 2 a). The *flagellum* consists of a single hair, and the lamina interior is composed of a few more or less well-defined teeth (18. tab. ii. fig. 3 a).

*Palps* (Pl. 8. fig. 20).—The granular *maxillæ* are truncate in front, with manducatory part slender, well defined (cf. 18. tab. i. fig. 6 b). The palps are distinctly and even coarsely granular, with the exception of the almost smooth fingers and less distinctly granular lower surface. The obtuse or pointed hairs are slender and very short. The *trochanter*, which is about 1.5 as long as wide, is strongly convex in front, and posteriorly produced into a fairly prominent, somewhat rounded distal protuberance; beneath this a better pronounced, and more conical tubercle is found, which is, however, much smaller and only seen from below. The *femur*, which is four times as long as wide, has a short well-defined stalk and has almost straight lateral outlines. The *tibia*, which has a short well-defined stalk (beyond which it is distinctly widened out towards the end), is much shorter and a trifle wider than femur and is 2.6 as long as wide, anteriorly as well as posteriorly a well-marked basal elevation is found, beyond which outlines are almost straight. The *chela*, which is 3.8 as long as wide, is 1.7 as wide as the tibia; the *hand* is 1.6 as long as wide, somewhat wider than deep, and 1.3 shorter than the fingers; the anterior outline of the hand is strongly convex, but the posterior only slightly so. The immovable finger has from near base to tip about 40 conical teeth, as widely removed from each other as their size at base; in addition to these about ten *accessory* teeth are found anteriorly in the middle, standing widely apart; the movable finger has 40 marginal teeth, which from the base to tip change from low and rounded to long and conical ones. The immovable finger has anteriorly in the middle five "spots," placed in a longitudinal row, and posteriorly six; anteriorly only three tactile hairs observed on immovable finger, and posteriorly four on both fingers.

*Coxæ*.—The coxæ are very similar to those of *G. elegans*, Sim., the fourth pair only being somewhat more slender (cf. 18. fig. 16, p. 92).

*Legs*.—The proximal joints granular; the hairs dorsally rather short and somewhat obtuse, but ventrally longer and pointed. The *arolium* extends distinctly beyond claws at least on fourth pair of legs. The basal *femoral* part of the first pair of legs, which is distinctly widened out towards the end and there deeper than the distal part, is 3 as long as deep and 1.9 as long as

the distal ; the combined tarsi, of which the first is 1·1 as long as the second, are 1·3 as long as the tibiæ. The *femur* of the fourth pair of legs is about 3 as long as deep and the tarsal joints are about 1·1 as long as the tibia.

*Colour*.—The palps, head, and darker band of tergites reddish brown ; rest of body yellowish.

*Measurements*.—Cephalothorax 0·690 (0·575) ; abdomen 1·38 (1·10) mm.

Palps : trochanter 0·253 (0·161) ; femur 0·647 (0·161) ; tibia 0·445 (0·175) ; hand 0·483 (0·299), depth 0·276 ; finger 0·647 mm.

Leg I. : femur I. 0·304 (0·099) ; femur II. 0·170 (0·095) ; tibia 0·220 (0·065) ; tarsus I. 0·160 (0·053) ; tarsus II. 0·140 (0·035) mm.

Leg IV. : femur 0·456 (0·155), trochantin 0·114 ; tibia 0·342 (0·084) ; tarsus I. 0·190 (0·061) ; tarsus II. 0·175 (0·043) mm.

*Material*.—Of this species I have examined Pocock's specimens from Funafuti, collected by Professor Sollas ; typical specimens are from the same island.

*Remarks*.—The described species may at present be regarded as identical with the form so imperfectly described by Rainbow. This species is nearly related to *G. irrugatus*, Sim., but seems to differ by longer finger and even more strongly convex anterior outline of the cheia ; but nevertheless the similarity is so great that I should not have maintained the two species, if it had not been for the widely separated localities and the fact that they had once been established.

## 2. GARYPUS MACULATUS, sp. n. (Plate 9. figs. 21–25.)

♂.

*Cephalothorax* (Pl. 9. fig. 21).—The anterior pair of *eyes* are placed on lateral margin and removed from the front margin a distance about three times their diameter. The *cephalothorax* is as long as wide behind, and of almost equal breadth at posterior margin and somewhat behind the eyes, but is there suddenly attenuated, forming a long *cucullus*, which is directed somewhat downwards and has a shallow incision in the middle of the front margin. No transverse sutures were visible. The integument is distinctly shagreened, most prominently in front and laterally ; the hairs are fairly long and obtuse.

*Abdomen*.—The abdomen is as broad as long and short obovate in shape ; the darker parts of the tergites are strongly granular, while the lighter are less distinctly so ; along the hindmost margin about 30 very short and thick hairs are observed in addition to two lateral in front on each side.

*Antennæ*.—The *galea* is exceedingly short, suddenly acute and not at all extending beyond the terminal hair. The *serrula exterior* seems to be similar to that of *G. elegans*, Sim. The *flagellum* consists of a single hair.

*Palps* (Pl. 9. figs. 22 & 23).—The laterally shagreened *maxillæ* are truncate in front, with the manducatory part well defined posteriorly (fig. 23). The

palps are coarsely granular, with the exception of the smooth fingers and indistinctly granular lower surface. The hairs are extremely short and obtuse. The *trochanter*, which is about 1·5 as long as wide, is strongly convex in front and posteriorly somewhat produced towards the end; the ventral tubercle is almost obsolete. The *femur*, which is 3·2 as long as wide, has a short fairly well-defined stalk and almost straight lateral outlines. The *tibia*, which has a short and well-defined stalk (beyond which it is somewhat widened out), is much shorter and a little narrower than the femur, and is 2·4 as long as wide; anteriorly as well as posteriorly a not very well-marked basal elevation is found, beyond which outlines are first almost straight and then slightly convex. The *chela*, which is about 3·2 as long as wide, is 1·7 as wide as the tibia; the *hand* is 1·5 as long as wide, wider than deep, and about 1·1 shorter than the fingers; the anterior outline of the hand is strongly convex, but the posterior only slightly so. The immovable *finger*, which dorsally beyond the middle becomes suddenly depressed, has about 25 pointed conical teeth from near base to tip, removed from each other as much as a tooth is wide at the base; in addition to these 18 conical *accessory* teeth, more widely apart, are found anteriorly from before middle to tip. The movable finger has about 35 teeth, changing from a low, closely placed one at base to pointed conical ones placed distally and more apart. The immovable finger has anteriorly at least about six "spots" placed in the middle in a longitudinal row.

*Coxæ* (Pl. 9. fig. 23).—The coxæ, especially the fourth pair, are of an elongated appearance as shown in figures, somewhat resembling those of *G. floridensis*, Bks.

*Legs* (Pl. 9. figs. 24 & 25).—The proximal joints are distinctly granular; the hairs are dorsally most often short and obtuse, ventrally longer and pointed. The *arolium* extends distinctly beyond the claws. The basal *femoral* part of the first pair of legs, which is distinctly widened out towards the end and here deeper than the distal part, is about twice as long as deep, 1·5 as long as the distal; the *tarsal* joints, of which the first is 1·1 as long as the second, is 1·5 as long as the tibia. The *femur* of the fourth pair of legs is 2·7 as long as deep, and the tibia is about 1·1 as long as the tarsal joints.

*Colour*.—The palps have trochanter yellowish and the chela reddish brown; the cephalothorax brown with the posterior portion in the middle yellowish. The first two abdominal tergites with a median and two lateral dark spots, and the following two median and two lateral spots, sometimes in front connected with a transverse band; the median spots always darker brown than the lateral; the skin between yellowish.

*Measurements*.—Cephalothorax 0·578 (0·610); abdomen 1·08 (1·08) mm.

Palps: trochanter 0·253 (0·161); femur 0·552 (0·172); tibia 0·391 (0·161); hand 0·425 (0·276), depth 0·235; finger 0·483 mm.

Leg I.: femur I. 0·225 (0·106); femur II. 0·152 (0·099); tibia 0·160 (0·072); tarsus I. 0·125 (0·053); tarsus II. 0·114 (0·042) mm.

Leg IV.: femur 0·372 (0·140), trochantin 0·122; tibia 0·304 (0·091); tarsus I. 0·160 (0·057); tarsus II. 0·122 (0·050) mm.

*Material*.—Of this species I have examined a single female, collected in the month of August in thickets near stream, in brush, near Balthazar (windward), Island of Grenada.

*Remarks*.—The described form differs from *G. cuyabanus*, Balz. (5. p. 441, and 6. p. 549) by the very differently-shaped galea, by the absence of a transverse suture on the cephalothorax, by the femur of the palps, which is 3·2 instead of 3·5 as long as wide, and by the shorter hand, which is not so long as the finger, and last, but not least, by the less slender legs, which in the fourth pair have the first tarsal joint much longer than the second (*cf.* 5. fig. 22). All these differences taken in consideration, and remembering that other members of the *Ch. irrugatus* group (*cf.* 18. p. 101), to which this species belongs, have the galea alike in both sexes, I feel obliged to establish a new species. The examined specimen was covered with a number of "spores of fungi" (*cf.* 18. p. 152).

3. GARYPUS FLORIDENSIS, *Banks*. (Plate 9. figs. 26–28; *cf.* With, 18. fig. 9, p. 41, tab. 2. figs. 4 a–d.)

1895. *Banks*, (9) p. 9.

♀.

*Cephalothorax* (Pl. 9. fig. 26).—Anterior pair of *eyes* slightly removed from lateral margin, but from the front margin a distance equal to three times their diameter. The *cephalothorax*, which is much longer than wide behind, is gradually attenuated towards the second pair of eyes, but in front distinctly narrows, forming a fairly long *cucullus* with a deep notch in the middle of the front margin. Two almost straight transverse *grooves*, of which the posterior is the deepest, are found, the anterior being placed much nearer to the hindmost than to the front margin. The skin is granular, with short obtuse hairs.

*Abdomen*.—The fairly long and slender abdomen has all the tergites but the first, partly second, and eleventh divided longitudinally by a broad band. The sclerites appear somewhat granular, and along the hindmost row of the tergites 12–14 short somewhat obtuse hairs are placed, in addition to two lateral in front of row on each side.

*Antennæ*.—The *galea*, which extends distinctly beyond the terminal hair, has about six terminal and ventral branches (*cf.* 18. tab. ii. fig. 4 c). The *serrula exterior* has median teeth, the shortest increasing in length towards the basal and terminal ones, of which the former is the longer (*cf.* 18. fig. 4 c). The *flagellum* consists of three short somewhat dentated hairs (*cf.* 18. fig. 4 b), and the *lamina interior* consists behind the terminal spine of a number of fairly well-marked squarely truncate "teeth."

*Palps* (Pl. 9. fig. 27).—The partly granular maxillæ are gradually attenuated towards the end, as the manducatory part is not well defined behind, providing similarity to those of *G. savicola*, Wath. (18. fig. 15, p. 92). The surface of the three proximal joints is covered by a mosaic of rounded plates, partly falling off in small pieces, as if they formed only a covering; the hand is very minutely granular; number of short obtuse hairs present. The *trochanter*, which is about 1·6 as long as wide, is strongly convex anteriorly and slightly produced posteriorly. The *femur*, which is 4·5 as long as wide, is beyond the short and not well-defined stalk gradually and distinctly enlarged towards the end, with both outlines almost straight. The *tibia*, which has a fairly long, not very well-defined stalk (beyond which it is distinctly widened out towards the end), is distinctly shorter and wider than the femur; it is almost 3·5 as long as wide with nearly straight lateral outlines. The *chela*, which is almost four times as long as wide, is 1·8 wider than the tibia. The *hand* is 1·8 as long as wide, distinctly wider than deep, and almost 1·2 shorter than the fingers; the anterior outline is strongly convex, the posterior and the dorsal and ventral outlines are only slightly so. The *fingers* bear a close row of short pointed marginal teeth from base to tip; the number of the immovable fingers is at least 100.

*Coxæ*.—The coxæ are very long and slender, especially the fourth pair, which have inner and hinder margins merging into each other without limitation and which are 3·5 as long as wide, being as a whole scarcely different from those of *G. savicola*, Wath. (cf. 18. fig. 15, p. 92).

*Legs* (Pl. 9. fig. 28; cf. 18. figs. 9 a-b, p. 41).—The proximal joints with mosaic of plates like the palps; the hairs are dorsally short, widest in the middle and then suddenly pointed, ventrally longer and generally pointed, especially those of the tarsi, which are somewhat similar to spines. The *arolium* scarcely extends beyond the slender, strongly curved claws. The basal *femoral* part of the first pair of legs, which is distinctly widened out towards the end and there somewhat deeper than the distal part, is 2·8 as long as deep and 1·7 as long as the latter. The *tarsal* joints, of which the first is at least 1·1 as long as the second, are at least 1·3 as long as the tibia. The *femur* of the fourth pair of legs is about 4 as long as deep, and the tibia is 1·3 as long as the tarsal joints.

*Colour*.—The palps are yellowish with reddish chelæ. The cephalothorax is dark brown with two yellowish spots in each of the tergites. The tergal sclerites of the abdomen are brownish with yellowish spots in the middle and yellow hairs; rest of abdomen yellowish.

*Measurements*.—Cephalothorax 1·27 (1·08); abdomen 3·7 (2·3) mm.

Palps: trochanter 0·647 (0·414); femur 1·541 (0·345); tibia 1·354 (0·392); hand 1·288 (0·713), depth 0·667; finger 1·518 mm.

Leg I.: femur I. 0·585 (0·207); femur II. 0·355 (0·195); tibia 0·506 (0·125); tarsus I. 0·368 (0·115); tarsus II. 0·322 (0·095) mm.

Leg IV.: femur 1.150 (0.285), trochantin 0.345; tibia 1.081 (0.161); tarsus I. 0.445 (0.138); tarsus II. 0.368 (0.115) mm.

♂.

*Abdomen, etc.*—A fairly distinct genital area is present. The rather short *galea* extends only slightly beyond the terminal hair and has a few branches (*cf.* 18. tab. ii. fig. 4 *d*).

*Palps.*—The proportions are slightly different from those of the female, as may be realised by comparing the measurements: the most important difference being that the hand is only 1.7 as broad as the tibia, 1.9 as long as wide, and at least 1.2 as long as fingers; its anterior outline is less strongly convex.

*Covæ.*—The fourth pair are less slender, being only three times as long as wide.

*Measurements.*—Cephalothorax 1.15 (0.92); abdomen 2.8 (1.7) mm.

Palps: trochanter 0.552 (0.345); femur 1.288 (0.299); tibia 1.196 (0.322); hand 1.035 (0.552), depth 0.495; finger 1.288 mm.

*Material.*—I have examined a single male, four females, and two young specimens, of which one was probably newly hatched, all collected together and mounted, with a label which reads: "Mustique Island, June; sandy seashore under drift-wood; each one in a thin round flat silken nidus, about  $\frac{1}{3}$  inch in diameter, attached to lower side of log, close together. Two of the females carried bundles of eggs." Previously mentioned from Florida.

*Remarks.*—In spite of Banks's rather imperfect description, I do not hesitate to refer the described characteristic form to his *G. floridensis*, Bks.

4. *OLPIUM CORDIMANUM*, Balzan (*cf.* With, 18. fig. 1, p. 17, tab. 2. figs. 6 *a-b*).

1891. Balzan, (6) pp. 536-537, pl. 12, fig. 28.

In the main, I refer to Balzan's good and fairly complete description. The *galea* extends somewhat beyond the terminal hair; in the female it has about five terminal teeth and is in the male without any teeth (*cf.* 18. fig. 1, p. 17); the *serrula exterior* has all its teeth squarely truncate, of equal length; and the *flagellum* consists of three hairs (18. tab. ii. fig. 6 *b*); the *lamina interior* has a plate-shaped basal portion, three dentated lobes, and a long pointed terminal spine (18. fig. 6 *a*).

The *femur* of the palps has a "tactile" hair dorsally near the base and the fingers possess a close row of marginal teeth; no "spots" are found anteriorly. The rather short *covæ* are in the main like those of *Olpium birmanicum*, With (18. fig. 7 *f*).

The first tarsal joint of the fourth pair of legs has a basal "tactile" hair. The legs are slender, especially the distal joints; *femur* I. of the first pair of legs is three times as long as deep and almost twice as long as the distal femoral part; the *tarsal* joints, of which the first is 1.2 as long as the second;



are 1·4 as long as the tibia. The *femur* of the fourth pair of legs, which is suddenly raised beyond the stalk and attenuated towards the end, is 2·4 as long as deep; the tarsal joints are a little longer than the tibia.

*Measurements* ♀.—Leg I.: femur 0·410 (0·137); femur II. 0·220 (0·122); tibia 0·288 (0·084); tarsus I. 0·228 (0·065); tarsus II. 0·128 (0·046) mm.

Leg IV.: femur 0·737 (0·304), trochantin 0·228; tibia 0·562 (0·129); tarsus I. 0·342 (0·088); tarsus II. 0·243 (0·061) mm.

*Material*.—Of this species I have examined 27 females and 15 males from New Granada and a few from Bogota (Keys. Coll.). It has previously been recorded from Venezuela.

##### 5. *OLPIUM FURCILIFERUM*, Balzan.

1881. Balzan, (6) pp. 537–538, pl. 12, figs. 30–30 b.

About this species I will only add a few remarks to Balzan's description. The *femur* of the palps has a "tactile" hair dorsally at the base; the fingers have close rows of marginal teeth. The *coxæ* are as in the preceding species. The tarsus of the fourth pair of legs has a basal "tactile" hair, and the *arolium* extends, as in the preceding species, distinctly beyond the claws. The legs are less slender than in *Olp. cordimanum*; the *tarsal* joints of the first pair of legs, of which the first is 1·3 as long as the second, are 1·3 as long as the tibia; the *femur* of the fourth pair of legs is twice as long as deep, and the tibia is almost 1·1 as long as the tarsal joints.

*Measurements*.—Leg I.: femur I. 0·296 (0·106); femur II. 0·152 (0·102); tibia 0·243 (0·068); tarsus I. 0·182 (0·049); tarsus II. 0·137 (0·038) mm.

Leg IV.: femur 0·555 (0·277), trochantin 0·190; tibia 0·456 (0·122); tarsus I. 0·243 (0·068); tarsus II. 0·175 (0·050) mm.

Of this species, which has been previously recorded from Venezuela, I have examined a single male collected in St. Vincent by Mons. E. Simon.

##### 6. *OLPIUM BREVIPES*, sp. n. (Plate 9, figs. 29–33; cf. With, 18, fig. 13, p. 89.)

♀.

*Cephalothorax*.—The anterior pair of *eyes* are placed on the lateral margin and removed from the front margin a distance somewhat smaller than their diameter. The *cephalothorax*, which is a little narrower behind than it is long, is only slightly attenuated towards the eyes and then distinctly narrowing, forming a short *cucullus*, which has a shallow notch on the front margin (cf. 18, fig. 13, p. 89). No trace of transverse sutures observed; the skin is almost smooth, somewhat polished, and with moderately long pointed hairs.

*Abdomen*.—The fairly long and slender abdomen has the undivided sclerites almost smooth, but not polished; the sclerites of the two first segments are almost obsolete. The tergites bear along their hindmost margin about ten pointed generally long hairs; last segment at least with "tactile" hairs.

*Antennæ* (Pl. 9. fig. 29).—The *galea*, which extends distinctly beyond the terminal hair, has three branches near tip. The *serrula exterior* (fig. 29) has all its teeth somewhat rounded. The *flagellum* consists of three hairs, very similar to those of *Olp. cordimanum*, Balz.

*Palps* (Pl. 9. fig. 30).—The smooth *maxillæ* are gradually attenuated towards the end. The palps are completely smooth, with the exception of the femur and tibia, which anteriorly are minutely and indistinctly granular, as well as the hand, which behind shows trace of granulations, and in front, especially at the base of fingers, has very distinct prominent granulations placed rather apart. The *hairs* are long and pointed; the femur has dorsally at the base a "tactile" hair. The *trochanter*, which is 1·4 as long as wide, is anteriorly moderately convex and posteriorly very slightly produced towards the end, being as a whole calyciform. The *femur*, which is 2·2 as long as wide, is, beyond the short well-defined stalk, of almost equal length throughout and has almost straight lateral outlines. The *tibia*, which has an exceedingly short and badly defined stalk, is somewhat longer and wider than the femur and twice as long as broad; the anterior outline is moderately convex and the posterior very slightly so. The *chela*, which is 2·6 as long as wide, is 1·4 as wide as the tibia; the *hand* is 1·5 as long as wide, somewhat wider than deep, and 1·3 as long as the finger; the lateral outlines are moderately convex. The fingers have a close row of marginal teeth.

*Coxæ*.—The coxæ are rather short, the fourth pair are somewhat triangular, as the inner and hinder margins, which are of almost equal length, merge gradually into each other, showing great similarity to that of *Olp. birmanicum*, With (*cf.* 18. fig. 7 *f*, tab. 2).

*Legs* (Pl. 9. figs. 31 & 32).—Fairly long and pointed hairs are found in addition to a much longer and slenderer one dorsally at the base of the tibia of the fourth pair of legs, as well as a dorsal "tactile" one at the base of the tarsus of the fourth pair of legs. The *arolium* extends distinctly beyond the claws. The legs are very short and clumsy. The basal *femoral* part of the first pair of legs, which is widened out towards the end and there scarcely deeper than the distal part, is scarcely 1·9 as long as deep and almost 1·3 as long as the latter; a median condylus is placed anteriorly as well as posteriorly; the *tarsal* joints, of which the first is distinctly longer, are 1·1 as long as the tibia. The *femur* of the fourth pair of legs, which is fairly suddenly raised beyond the stalk and then somewhat attenuated, is scarcely twice as long as deep, and the tibia is 1·3 as long as the tarsal joints.

*Colour*.—The proximal joints of the palps are yellowish brown, and the chela is reddish brown. The cephalothorax is dark brown, and the tergal sclerites are yellowish brown.

*Measurements*.—Cephalothorax 0·506 (0·460); abdomen 1·54 (0·85) mm.

Palps: trochanter 0·276 (0·195); femur 0·437 (0·195); tibia 0·460 (0·230); hand 0·506 (0·335), depth 0·285; finger 0·391 mm.

Leg I.: femur I. 0·190 (0·103); femur II. 0·152 (0·099); tibia 0·182 (0·072); tarsus I. 0·106 (0·050); tarsus II. 0·091 (0·038) mm.

Leg IV.: femur 0·456 (0·232), trochantin 0·190; tibia 0·350 (0·118); tarsus I. 0·152 (0·072); tarsus II. 0·122 (0·061) mm.

♂.

*Abdomen, etc.*—The *genital* area is not prominent, but nevertheless easy to distinguish from that of the female. The *galea*, which scarcely extends beyond the terminal hair, is much more slender, with branches much shorter (Pl. 9. fig. 33).

*Palps.*—The *chela* is 2·7 as long as wide and only 1·4 as wide as tibia; the *hand* is scarcely wider than deep and 1·1 as long as the fingers.

*Measurements.*—Cephalothorax 0·460 (0·437); abdomen 1·20 (0·58) mm.

Palps: trochanter 0·253 (0·184); femur 0·425 (0·184); tibia 0·437 (0·220); hand 0·450 (0·315), depth 0·315; finger 0·405 mm.

Leg I.: femur I. 0·182 (0·091); femur II. 0·152 (0·094); tibia 0·175 (0·068); tarsus I. 0·106 (0·046); tarsus II. 0·091 (0·038) mm.

Leg IV.: femur 0·437 (0·224), trochantin 0·160; tibia 0·342 (0·110); tarsus I. 0·152 (0·061); tarsus II. 0·122 (0·053) mm.

*Material.*—Of this species I have examined three males, two females and a young one, collected by M. E. Simon at St. Vincent.

*Remarks.*—One of the main differences between the described form and *Olp. brevifemuratum*, Balzan (5. p. 440 and 6. p. 549) is that found in the chela of the palps, which is 2·7 (♂) instead of 2·9 as long as wide, and 1·4 instead of 1·3 as wide as the tibia, with the hand 1·3 (♀ or ♂) as long as the finger instead of 1·6. The differences between the legs are even more striking, the second tarsal joint being much shorter instead of much longer than the first for instance, and I consequently think that the establishment of a new species is necessary.

7. *OLPIUM PACIFICUM*, sp. n. (Plate 9. figs. 34–38, Plate 10. fig. 39; cf. With, 18. fig. 12, p. 89.)

*Cephalothorax.*—The anterior pair of *eyes* are placed on the lateral margin and at a distance about equal to their diameter from the front margin. The *cephalothorax*, which is somewhat longer than it is broad in the middle, where it is broadest, narrows in front of the eyes, thus producing a short *cucullus*, which has an indistinct notch in the middle of the front margin. The cephalothorax shows in the middle trace of a transverse suture distinctly curved backwards (cf. 18. fig. 12, p. 89, in which figure, however, it is too prominent). The integument is smooth and polished, and the hairs are moderately long and pointed.

*Abdomen.*—The long and slender abdomen has the undivided sclerites

smooth and polished and provided with long and pointed hairs; the eleventh tergite at least possesses "tactile" hairs.

*Antennæ* (Pl. 9. figs. 34 & 35).—The long and slender *galea*, which has three terminal branches, extends very much beyond the terminal hair. All the teeth of the *serrula exterior* are equally truncate and of almost equal length, with the exception of the basal, which is longer and distally widened out (fig. 35). The *flagellum* consists of three hairs, of which the anterior, which is marginally serrated, is much longer than the other two.

*Palps* (Pl. 9. fig. 36).—The smooth *maxillæ* are gradually attenuated towards the end. The palps are smooth or almost so, except the femur and tibia, which are anteriorly slightly granular, and the hand, which has larger granulations. The hairs are long and pointed; the femur has at the base a dorsal "tactile" hair. The *trochanter*, which is about 1.5 as long as wide, is anteriorly slightly convex and posteriorly somewhat bigibbose; it can scarcely be designated calyciform. The *femur*, which is 2.7 as long as wide, has a short and well-defined stalk and is beyond the middle somewhat attenuated; the anterior outline is slightly convex basally and the posterior is almost straight. The *tibia* has a fairly long and well-defined stalk, is scarcely as long as but distinctly wider than the femur, and is about twice as long as broad; the anterior outline is moderately convex and so is the posterior distally, but proximally straight. The *chela*, which is about 3 as long as broad, is almost 1.3 as wide as the tibia; the *hand* is 1.5 as long as wide, scarcely as wide as deep and 1.1 shorter than the finger; the lateral outlines of the hand are moderately convex.

*Coxæ* (Pl. 9. fig. 37).—The fourth pair are very elongated, of a somewhat trapezoidal appearance.

*Legs* (Pls. 9–10. figs. 38 & 39).—Fairly long and pointed hairs are found in addition to a very long and slender one dorsally at the base of the tibia of the fourth pair of legs; the dorsal "tactile" hair at the base of the first tarsal joint is exceedingly long. The *arolium* extends distinctly beyond the short and clumsy claws. The legs are rather short and thick. The basal *femoral* part of the first pair of legs, which is widened out towards the end and there somewhat deeper than the distal part, is only 1.6 as long as deep and about 1.1 as long as the latter; the condyli are placed near dorsal margin; the tibia is a trifle longer than the *tarsal* joints, of which the first is the longer. The *femur* of the fourth pair of legs, which is not suddenly raised beyond the stalk, is distinctly twice as long as deep, and the tibia is almost 1.4 as long as the tarsal joints.

*Colour*.—The palps and the cephalothorax are reddish brown, and the abdomen is blackish.

*Measurements*.—Cephalothorax 0.621 (0.540); abdomen 1.56 (0.69) mm.

Palps: trochanter 0.322 (0.207); femur 0.585 (0.220); tibia 0.552 (0.265); hand 0.506 (0.332), depth 0.345; finger 0.552 mm.

Leg I.: femur I. 0·205 (0·129); femur II. 0·182 (0·125); tibia 0·243 (0·088); tarsus I. 0·122 (0·065); tarsus II. 0·114 (0·053) mm.

Leg IV.: femur 0·494 (0·240), trochantin 0·190; tibia 0·414 (0·137); tarsus I. 0·160 (0·080); tarsus II. 0·144 (0·068) mm.

*Material*.—I have examined a single female, collected in Stewart Island (New Zealand) by Mr. H. B. Kirk.

*Remarks*.—This species differs from *Olp. longiventer*, Keys. (4. p. 50), among other particulars by less long and slender palps, the femur being only 2·7 instead of distinctly 4 as long as wide, and the chela being shorter not longer than the combined femur and tibia.

8. GARYPINUS OCEANICUS, sp. n. (Plate 10. figs. 40–47.)

1898. *Olpium longiventer*, Keyserling; Pocock, (11) p. 323.

♀.

*Cephalothorax*.—The eyes are placed on the lateral margin and the distance of the first pair from the front margin is scarcely as long as their diameter. The *cephalothorax* has a rather curious shape, as the hindmost fifth is pale and not enclosed by the well-chitinised shield, the hindmost margin of which is almost straight; the whole cephalothorax is distinctly longer than wide, but the cephalothoracic shield is as long as wide. The head is somewhat narrow in front of the eyes, forming a short *cucullus*, which has a median incision in the front margin. No trace of transverse suture was observed and the skin is smooth and polished with rather short hairs.

*Abdomen*.—The long and slender abdomen, which has its tergites undivided, has a curious appearance on account of the almost or complete absence of sclerites from the first two tergites and the short but distinct third one. The almost smooth tergal sclerites show trace of a transverse keel, along which the fairly long pointed hairs are placed in white spots, well removed from the hinder margin.

*Antennæ* (Pl. 10. fig. 40).—The slender *galea*, which extends distinctly beyond the terminal hair, has three branches. All the teeth of the *serrula exterior* are squarely truncate and of almost equal length (fig. 40). The *flagellum* consists of three hairs without ramifications or with almost obsolete teeth along the front margin of the first hair (*cf.* fig. 45).

*Palps* (Pl. 10. figs. 41 & 42).—The smooth *maxillæ* are gradually attenuated towards the end. The palps are smooth with the exception of the anterior surface of the hand, which has a few granulations at the base of the fingers. The hairs are moderately long and pointed. The *trochanter*, which is 1·4 as long as wide, is slightly convex anteriorly, a trifle produced posteriorly and appears calyciform. The *femur*, which is 2·5 as long as wide, has a short, fairly well-defined stalk and is of almost equal width throughout, with nearly straight lateral outlines. The *tibia*, which has a rather short, well-defined

stalk, is somewhat longer and wider than the femur and about 2·2 as long as wide; the lateral outlines are slightly convex. The *chela*, which is about 3 as long as broad, is 1·3 as wide as the tibia; the *hand* is 1·8 as long as wide, a trifle wider than deep, and 1·3 as long as the finger; the lateral outlines of the hand are slightly convex. The *fingers* bear a close row of rather short, conical, marginal teeth; the immovable finger has anteriorly four tactile hairs, but posteriorly three at the base, one above the other, one in the middle, and one near the tip; the movable finger has three tactile hairs close together at the base and one in the middle.

*Coxæ* (Pl. 10. fig. 41).—The coxæ are fairly elongated, with the fourth pair of a somewhat triangular appearance, as inner and hinder margin, which are of almost equal length, are not well distinguished from each other.

*Legs* (Pl. 10. figs. 43 & 44).—The pointed hairs change from rather short to long; at the base of the first tarsal joint of the fourth pair of legs a long "tactile" hair is observed. The arolium extends distinctly beyond the short claws, but is not bifurcate. The basal *femoral* part of the first pair of legs, which is widened out towards the end and there somewhat deeper than the distal part, is scarcely 1·2 as long as deep and 1·4 shorter than the latter. The anterior condylus is placed almost median and so is the posterior, but more dorsally; as the margin of the basal femoral part posteriorly is placed more distally an oblique articular cavity is produced; but it must be admitted that the articulation is as a whole more similar to the usual hinge-joint than to that of *G. nobilis*, With (*cf.* 18. fig. 7, p. 38). The *tarsal* joints, of which the second is the longer, are 1·2 as long as the tibia. The *femur* of the fourth pair of legs, which is not very suddenly raised beyond the stalk and attenuated, is 2·1 as long as deep, and the tibia is almost 1·2 as long as the tarsal joints.

*Colour*.—The palps are yellowish brown with darker chela. The cephalothoracic shield is blackish green and the tergal sclerites—first two excepted—are brown, while the hindmost part of the cephalothorax and the first two tergites are yellowish, the body thus getting a very characteristic appearance.

*Measurements*.—Cephalothorax 0·506 (0·414); abdomen 1·61 (0·81) mm.

Palps: trochanter 0·207 (0·150); femur 0·405 (0·161); tibia 0·414 (0·195); hand 0·437 (0·242), depth 0·242; finger 0·345 mm.

Leg I.: femur I. 0·110 (0·095); femur II. 0·152 (0·091); tibia 0·165 (0·065); tarsus I. 0·080 (0·046); tarsus II. 0·095 (0·038) mm.

Leg IV.: femur 0·372 (0·179), trochantin 0·144; tibia 0·281 (0·088); tarsus I. 0·110 (0·061); tarsus II. 0·129 (0·049) mm.

♂.

The size is much smaller. A complicated, fairly prominent *genital* area, resembling somewhat about that of *G. nobilis*, With. The *galea*, which only extends beyond the terminal hair in a slight degree, has three short distal

teeth (Pl. 10. figs. 45-47). The *palps* seem to be somewhat more clumsy, but their hand is only 1·2 as long as the finger. The legs are less slender, but only in a slight degree, as seen when comparing the measurements.

*Measurements*.—Palps: trochanter 0·175 (0·125); femur 0·335 (0·138); tibia 0·345 (0·161); hand 0·355 (0·207); finger 0·299 mm.

Leg I.: femur I. 0·099 (0·076); femur II. 0·129 (0·072); tibia 0·144 (0·053); tarsus I. 0·068 (0·040); tarsus II. 0·091 (0·035) mm.

Leg IV.: femur 0·296 (0·152), trochantin 0·120; tibia 0·243 (0·072); tarsus I. 0·084 (0·050); tarsus II. 0·106 (0·041) mm.

*Material*.—Of this pretty little species I have examined five males and six females, all collected in Funafuti by Professor Sollas, and by Pocock wrongly referred to *Olp. longiventer*, Keys.

*Remarks*.—This species is easily distinguished from *Olp. longiventer*, Keys., for instance, by the much shorter and clumsy palps, with the femur 2·5 instead of four times as long as wide. This species is related to *G. nobilis*, With, and shows in the shape of the palps the nearest similarity to it, but its flagellum consists of three hairs instead of four, its basal femoral part is longer, and the areola are not bifurcate.

9. GARYPINUS MIRABILIS, sp. n. (Plate 10. figs. 48-53; cf. With, 18. fig. 2, p. 17.)

1900. *Olpium longiventer*, Keyserling; Simon, (13) p. 519.

*Cephalothorax* (Pl. 10. fig. 48).—*Eyes* placed on the lateral margin, and distant from the front margin less than the diameter of the first pair. The *cephalothorax* is distinctly longer than wide and narrows somewhat in front of the first pair of eyes, forming a short *cucullus*, which has the front margin obtuse-angled. Skin without transverse grooves and smooth with simple hairs.

*Abdomen*.—The long and slender abdomen has the smooth and polished tergites divided by a longitudinal line from the fourth to the tenth. Long and pointed hairs are present in addition to "tactile" ones in the last two segments.

*Antennæ* (Pl. 10. figs. 49 & 50).—The *galea*, which extends somewhat beyond the terminal hair, has three terminal branches (fig. 49). The *serrula exterior* (fig. 50; cf. 18. fig. 2, p. 17) has basal tooth distinctly widened out and terminal almost free and fairly slender, while those between are squarely truncate. The *flagellum* (fig. 50) consists of four hairs, of which the anterior has several marginal teeth, while the two following have a few. *Lamina interior* with well-divided plate-shaped portion and five more or less distinct dentated lobes in addition to the terminal spine.

*Palps* (Pl. 10. fig. 51).—The palps are smooth, with fairly long pointed hairs. The *trochanter* is slightly convex anteriorly and somewhat produced behind. The *femur*, which is about three times as long as wide, has a short

stalk and almost straight outlines. The *tibia*, which is about as long as, but wider than, the femur, has a moderately short stalk and slightly convex outlines. The *chela*, which is at least 3·5 as long as broad, is about 1·2 as long as the tibia, with almost straight lateral outlines; the hand is a trifle longer than the finger.

*Legs* (Pl. 10. figs. 52 & 53).—The *arolia* extend distinctly beyond the claws and are bifurcate. The *femur* of the first pair of legs has a basal trochantin and a tibia which is of about equal length to the *tarsal* joints, of which the second is much longer than the first. The *femur* of the fourth pair of legs is at least twice as long as deep, and the tibia is much longer than the tarsal joints.

*Colour*.—The palps are pale reddish brown; the cephalothorax and, in a less degree, the abdomen are darker brown.

*Measurements*.—Cephalothorax 0·56 (0·51); abdomen 1·8 (0·75) mm.

*Material, etc.*—During a stay in London I examined a single female (?) of this form from Kauai, one of the most western islands of the Sandwich Archipelago, and by E. Simon wrongly identified with *Olp. longiventer*, Keyserling. As I had the opportunity of examining this interesting species only a few days before leaving, I had no time to furnish a more detailed description; but the above will certainly be more than sufficient for a sure identification.

As hitherto no species of *Garypinus*, Dad., has been recorded from Africa, I shall only mention that Dr. Ansorge has collected at Huxe in Benguela a young form of this genus.

## SUPPLEMENT.

### 1. CHIRIDIUM FERUM, *Simon*. (Plate 10. figs. 54–57.)

1879. *Simon*, (2) pp. 44–45, pl. 18. fig. 21.

Of this most interesting species I have examined a large number of specimens from Ille-et-Vilaine, France, viz. five females and a single male from Le Bosq and fourteen females and five males from Bois de Lupin, and mention it in this paper on account of the most remarkable structure of the antennæ. While the galea of *Ch. museorum*, Leach, is a simple stiletto, and in *Ch. corticum*, Balzan, somewhat branched in the female but simple in the male (5. tab. xiv. fig. 8), it consists in the female of this species of three independent, pointed and unbranched “*galeæ*,” one placed somewhat above the other (fig. 54) and slightly extending beyond the terminal hair. When these three “*galeæ*” are observed from the sides (fig. 53) they seem to be basally fused, and are perhaps to be regarded as branches only of a trifid galea with an exceedingly short basal part. In the male only two rather short “*galeæ*” are observed (figs. 56 & 57). The *serrula* is very



similar to that usually found in *Chelififer*, Geoff., and consists of nine completely fused rounded teeth, of which the basal is much the longest and distinctly widened out (fig. 57). The *flagellum* is similar to that of *Ch. museorum*, Leach, but the anterior marginally-serrated hairs are less slender (fig. 57): the *lamina interior* has beyond the large plate-shaped portion a single or two scarcely dentated lobes, in addition to the simple spine. The *femur* of the fourth pair of legs shows no trace of a basal trochantin, but in the first pair we find posteriorly a fairly well-marked basal suture which bounds a triangle, the acute angle of which is one-fourth removed from the base; this suture is continued anteriorly, and there placed very near to the base; the whole structure shows a marked similarity to that found in most species of *Chelififer*, Geoff.

2. IDEORONCUS CAMBRIDGEI (*I. Koch*). (Plate 10. fig. 58.)

1873. *Roncus Cambridgei*, L. Koch, (1) pp. 45-46.

1879. *Obisium lubricum*, Simon, (2) pp. 63-64, pl. 18. fig. 22.

1892. *Roncus Cambridgei*, Cambridge, (7) p. 217, pl. B. figs. 9-9b.

Of this species I have examined a single female and two young specimens, collected in Argyll (Scotland) and determined by R. Godfrey. I only mention this well-characterized species, which is certainly identical with that originally described by L. Koch from England, on account of the presence of a well-developed galea, a structure hitherto completely overlooked\*. The *galea* is divided into five branches, as shown in the figure (58); the *serrula exterior*, which is free in its distal two-fifths, has at least the distal teeth rounded and dentated, providing similarity to that of *Ideobisium crassimanum*, Balzan (*cf.* Hansen, 8. tab. 5. fig. 7); the *flagellum* has also a structure completely like that of the species mentioned (*cf.* 8. tab. 5. fig. 6), consisting of seven slender unilaterally pinnate hairs; the *serrula interior* has also a similar structure (*cf.* 8. tab. v. fig. 6), but its terminal spine is completely fused with the main portion, not placed on a lower level.

The *subterminal* hairs of the legs are not well pronounced, bearing only a few indistinct teeth. The tarsal joints, of which the second is scarcely twice as long as the first, are in the first pair of legs somewhat longer than the tibiæ, but in the fourth pair much shorter. The articular membrane between the two parts of the femur of the fourth pair of legs, of which the distal is distinctly the longer, is better developed than is usually the case, being somewhat widened out ventrally.

The presence of a well-developed galea in at least the female of this species, which to all appearance is nearly related to *R. lubricus*, L. Koch, which has, according to Ellingsen, no galea, makes the value of this character in the

\* This remark is not quite correct, as Mr. H. Wallis Kew, in a private letter received several months after the writing of this passage, says: "I noticed in January 1904 that '*Roncus*' *Cambridgei*, L. Koch, is an *Ideoroncus* with a distally toothed galea. . . ."

definition of the *Obisiinae*, Dad., and *Pseudobisiinae*, Hansen, very doubtful. As even the character found in the tactile hairs of the hand fails—for in *I. Cambridgei*, L. Koch, only the fingers seem to bear hairs—I really think that the two subfamilies, at least as hitherto defined, may be abandoned, and that the limitation between the established genera is less sharp than desirable (*cf.* With, 18. p. 76). But, with only scanty material at my disposal, I do not wish at present to make alteration in the established system. Although a determination of the *Obisiidae*, Hansen, forming part of the British Museum's collections, has convinced me that this family is in sore need of a complete revision, based on rich material and on modern lines, nevertheless alterations, even improvements, are not to be recommended in classification unless they are absolutely necessary and can be made with certainty.

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## EXPLANATION OF THE PLATES.

## PLATE 8.

1 & 2. *Chelifer vigil*, sp. n.

- Fig. 1. ♂. Left palp, × c. 15.  
 2. ♂. Chela of right palp in posterior view, × 38.

3–5. *Chelifer Keyserlingi*, sp. n.

- Fig. 3. ♀. Right palp, × 13·5.  
 4. ♀. Chela of left palp in anterior view, × 24.  
 5. ♀. Chela of left palp in posterior view, × 44.

6-8. *Chelifer taiensis*, sp. n.

- Fig. 6. ♀. Left palp,  $\times 17.5$ .  
 7. ♀. Immobile finger of right palp in anterior view,  $\times 24$ .  
 8. ♀. Chela of right palp in posterior view,  $\times 24$ .

9-12. *Chelifer funafutensis*, sp. n.

- Fig. 9. ♀. Left palp,  $\times 24$ .  
 10. ♀. Tibia of right palp in anterior view,  $\times 44$ .  
 11. ♀. Chela of right palp in anterior view,  $\times 44$ .  
 12. ♀. Fingers of right palp in posterior view,  $\times 44$ .

13 & 14. *Chelifer javanus*, Thor.

- Fig. 13. ♀. Left palp,  $\times 21$ .  
 14. ♀. Chela of right palp in posterior view,  $\times 24$ .

15 & 16. *Chelifer navigator*, With.

- Figs. 15 & 16. ♂. Left tibia in dorsal view,  $\times 24$ .

17-19. *Chelifer Pocockii*, sp. n.

- Fig. 17. ♀. Trochanter and femur of right palp in anterior view,  $\times 44$ .  
 18. ♀. Left palp,  $\times 24$ .  
 19. ♀. Chela of right palp in anterior view,  $\times 44$ .

20. *Garypus longidigitatus*, Rainb.

- Fig. 20. ♂ (?). Left palp,  $\times c. 30$ .

## PLATE 9.

21-25. *Garypus maculatus*, sp. n.

- Fig. 21. ♂. Cucullus,  $\times c. 90$ .  
 22. ♂. Left palp,  $\times c. 35$ .  
 23. ♂. Maxillæ and coxæ,  $\times c. 55$ .  
 24. ♂. Left leg I. in anterior view,  $\times c. 70$ .  
 25. ♂. Left leg IV. in anterior view,  $\times c. 70$ .

26-28. *Garypus floridensis*, Bks.

- Fig. 26. ♀. Cucullus,  $\times c. 30$ .  
 27. ♀. Left palp,  $\times 13$ .  
 28. ♀. Dorsal hair of femur I. of first pair of legs,  $\times c. 370$ .

29-33. *Olpium brevipes*, sp. n.

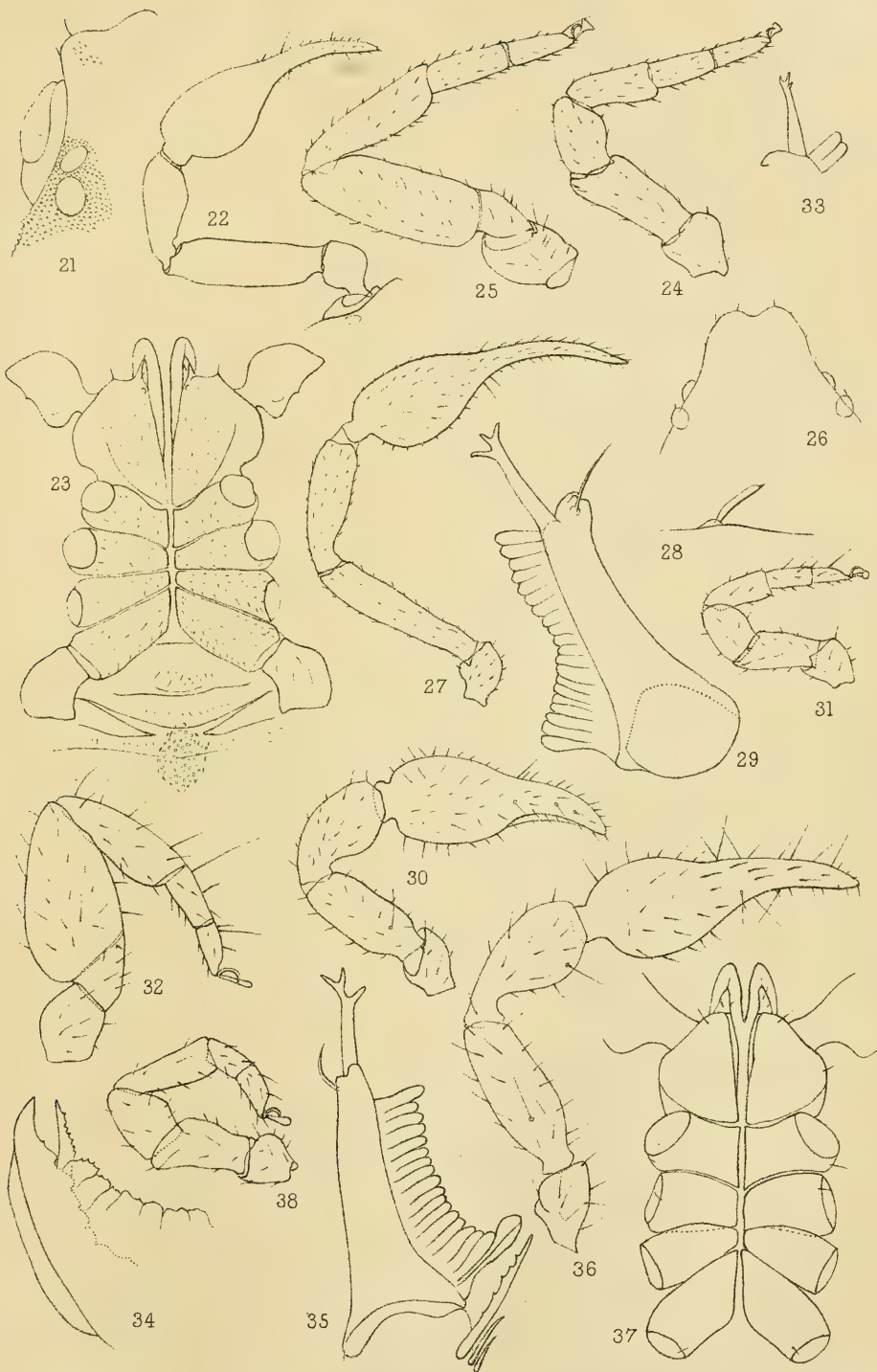
- Fig. 29. ♀. Movable finger of left antenna,  $\times c. 220$ .  
 30. ♀. Left palp,  $\times 38$ .  
 31. ♀. Left leg I. in anterior view,  $\times 57$ .  
 32. ♀. Left leg IV. in anterior view,  $\times 57$ .  
 33. ♂. Left galea,  $\times c. 220$ .



C. With. del.

J. T. Rennie Reid, Lith. Edin<sup>g</sup>

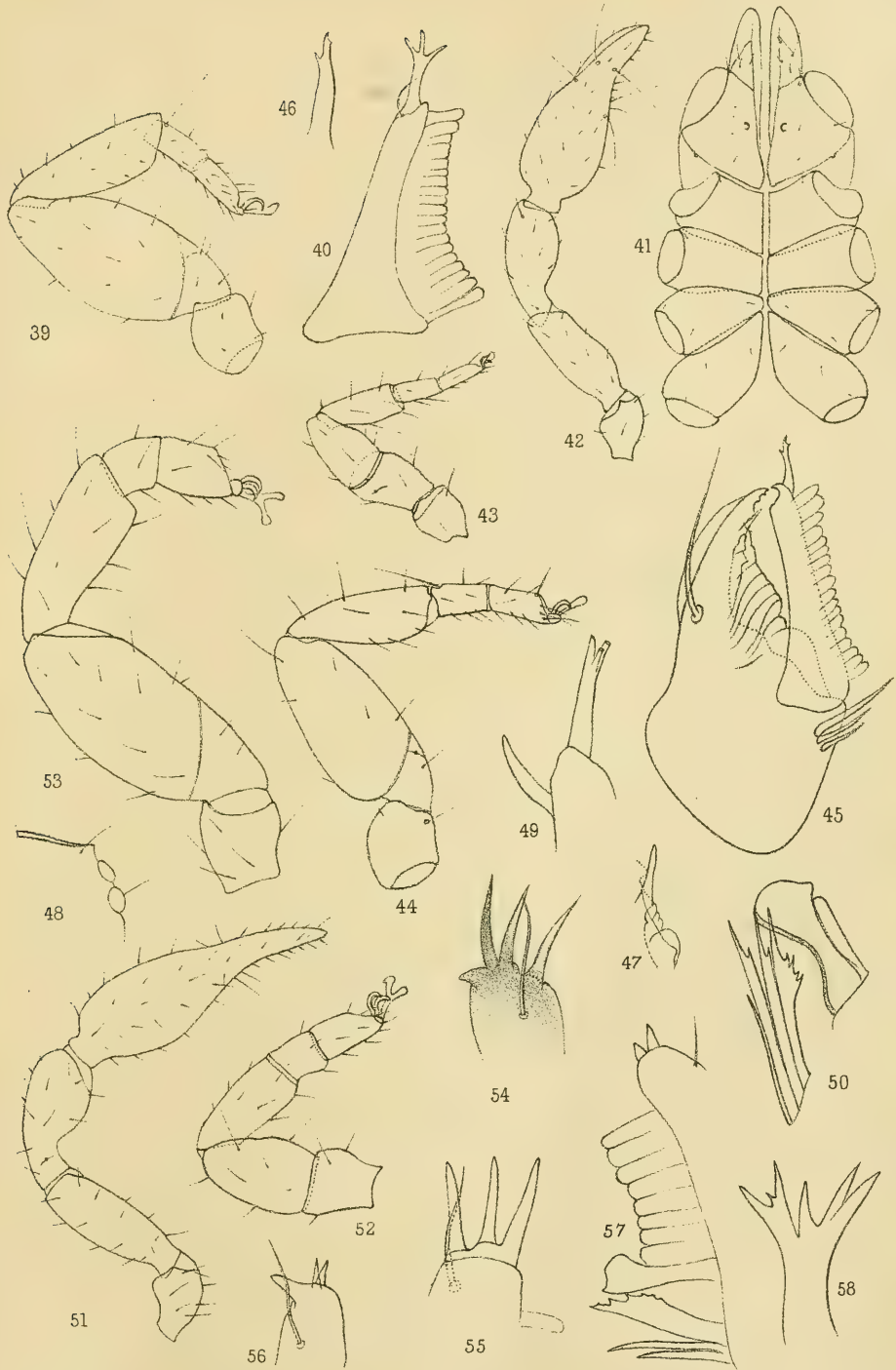
CHELIFERIDÆ & GARYPIDÆ.



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J. T. Renne Reid, Lith. Edin'

CHELIFERIDÆ & GARYPIDÆ.



C. With. del.

J.T. Remie Reid, Lith. Edin<sup>r</sup>

CHELIFERIDÆ & GARYPIDÆ.

34-38. *Olpium pacificum*, sp. n.

- Fig. 34. ♀. Immovable finger of left antenna from below, × c. 315.  
 35. ♀. Movable finger of left antenna, × c. 235.  
 36. ♀. Left palp, × c. 35.  
 37. ♀. Maxillæ and coxæ, × c. 60.  
 38. ♀. Left leg I. in anterior view, × c. 60.

## PLATE 10.

39. *Olpium pacificum*, sp. n.

- Fig. 39. ♀. Left leg IV. in anterior view, × c. 60.

40-47. *Garypinus oceanicus*, sp. n.

- Fig. 40. ♀. Movable finger of left antenna, × c. 280.  
 41. ♀. Maxillæ and coxæ, × c. 70.  
 42. ♀. Left palp, × c. 45.  
 43. ♀. Left leg I. in anterior view, × c. 75.  
 44. ♀. Left leg IV. in anterior view, × c. 75.  
 45. ♂. Left antenna from below, × c. 280.  
 46. ♂. Left galea, × c. 550.  
 47. ♂. Tip of left lamina interior from below, × c. 550.

48-53. *Garypinus mirabilis*, sp. n.

- Fig. 48. ♀. Cucullus, × c. 55.  
 49. ♀. Left galea and terminal tooth of serrula exterior, × c. 350.  
 50. ♀. Flagellum and two basal teeth of serrula exterior, × c. 350.  
 51. ♀. Left palp, × c. 40.  
 52. ♀. Right leg I. in posterior view, × c. 75.  
 53. ♀. Right leg IV. in posterior view, × c. 75.

54-57. *Chiridium ferum*, Sim.

- Fig. 54. ♀. Tip of movable finger of right antenna almost in dorsal view, × c. 800.  
 55. ♀. As preceding, but in exterior, partly dorsal view, × c. 800.  
 56. ♂. Tip of movable finger of right antenna in dorsal view, × c. 800.  
 57. ♂. Flagellum, serrula, and galea of right antenna from inner side, × c. 800.

58. *Ideoroncus Cambridgei*, L. Koch.

- Fig. 58. ♀. Galea of left antenna in exterior view, × c. 800.
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